PROJECT 5A

Glenn-Colusa Irrigation District Regulatory Reservoirs and Off-canal Storage Feasibility Study

1. Project Description

Project Type:	**Groundwater/Surface Water Planning**
Location:	**Glenn and Colusa counties**
Proponent(s):	**Glenn-Colusa Irrigation District (GCID or District)**
Project Beneficiaries:	**GCID, in- and out-of-basin users, environment, Delta**
Total Project Components:	**Feasibility study as a short-term component that could potentially lead to a large-scale project with off-canal storage basin and regulatory reservoir**
Potential Supply:	**Depends on outcome of feasibility study, but potentially could lead to project with water supply benefits of 5,000 to 35,000 acre-feet per year (ac-ft/yr)**
Cost:	**$750,000 for the feasibility study**
Current Funding:	**$100,000 Water Use Efficiency grant**
Short-term Components:	**Feasibility study to investigate the feasibility of off-canal storage and/or regulatory reservoir**
Potential Supply (by 2003):	**None**
Cost:	**$750,000**
Current Funding:	**$100,000 Water Use Efficiency grant**
Implementation Challenges:	**No significant implementation challenges at the feasibility study level**
Key Agencies:	**GCID; Glenn, Colusa, and Tehama counties; local landowners; U.S. Bureau of Reclamation (USBR); California Department of Water Resources (DWR); environmental interest groups, U.S. Fish and Wildlife Service (USFWS); California Department of Fish and Game (CDFG); Sacramento-San Joaquin Delta**

Summary

The purpose of this memorandum is to present a project that proposes to address the feasibility of adding off-canal storage and regulating reservoirs toGCID's conveyance system to increase water use efficiency through reduction of operational spills, take advantage of storm peaks, and utilize excess winter flows.

GCID is located in the central portion of the Sacramento Valley on the west side of the Sacramento River, as illustrated on Figure 5A-1. The District's service area extends from northeastern Glenn County near Hamilton City to south of Williams in Colusa County. The east side of the District stretches toward the Coast Range andTehama-Colusa Canal Authority (TCCA). Its main facilities include a 3,000-cubic foot per second (cfs) pumping plant and fish screen structure, a 65-mile Main Canal, and approximately 900 miles of laterals and drains.

With 175,000 acres, GCID is the largest irrigation district not only in the Colusa Sub-basin, but also in the Sacramento Valley itself. The soils within this area generally consist of clay-like characteristics and are considered some of the most prime soils for agriculture in the world. The low infiltration rates of the tight soils are conducive to furrow and border irrigation. To that end, rice is the District's predominant crop. Typical years include more than 75 percent of its irrigated acreage in rice. Other crops include but are not limited to vine crops (e.g., melons), tomatoes, sunflowers, prunes, almonds, and walnuts.

The Sacramento River serves as the principal water source for the District. Its diversion, the largest surface water diversion on the river, lies at the head of the District, just north of Hamilton City. The District has the ability to supplement its supply with groundwater from local production wells through a voluntary conjunctive use program. The extensive canal system conveys water year-round as part of its commitment to its stakeholders and neighboring wildlife refuges.

GCID Water Management

Recently, GCID's ability to divert their full entitlement was reduced because of the endangered species limitations associated with the District's previous fish screen operation. In addition, several years were classified as "critical years," and contract supplies were reduced to 75 percent of entitlements. The District managed several programs to supplement these reduced supplies, including the conjunctive use program mentioned above. Other programs included a water conservation program, which at one time required water use patrols around the District, and a water reuse program.

An aggressive drainwater recapture program, which includes both groundwater seepage and tailwater runoff from cultivated fields from withinGCID's service area, is a part of the District's overall water management program. GCID recaptures this water with both gravity and pump systems. Recaptured water is delivered to either laterals or the Main Canal for reuse. Currently, GCID recycles approximately 155,000 ac-ft annually.

GCID has used its water management programs to significantly reduce its surface water diversions and irrigation demands. Within the last decade, GCID diversions have been reduced by an estimated 25 percent, due in large part to conservation practices and such

factors as precision farming techniques. Furthermore, the District is continuously striving to increase the efficiency of its system through automation and water reuse.

The current state of the GCID conveyance system can result in unintentional, yet often unavoidable, tailender problems such as spills. GCID Main Canal spills, combined with Colusa Basin Drain flows, can range from 100 cfs to 2,000 cfs weekly. The District has been improving its system in recent years to more efficiently utilize the water supply and prevent unnecessary outflows such as spills. Managing and controlling flow fluctuation could yield flow benefits of hundreds of acre-feet daily.

Regulating reservoirs and off-canal storage could improve management of existing water supplies by storing flows that may be made available throughout the system during periods of lower demand. The storage reservoirs would be able to exploit high winter flows, stormwater waves that undulate down District lands, and stormwater peaks.

Short-term Component

The large-scale nature of a project that proposes large earthen basins to be added to the GCID system does not lend itself to a short-term component or pilot project that could produce water for in- or out-of-basin use by 2003. A feasibility study must be conducted with a possible design and construct component and initiation of the National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) process. The feasibility study should address basic project components that would be essential to design (e.g., site location, feasible storage capacities), construction (e.g., environmental surveys, permitting), and implementation (e.g., public involvement) of a successful off-canal storage and/or regulating reservoir project. The feasibility study would likely include the following tasks:

- Data Collection—Necessary information regarding existing system hydraulics including cross-drainage, system in-flows and out-flows, and local hydrology should be collected as part of the first project task. Other valuable information that should be included in this informtaion gathering process would be soil investigations to assist in proper siting of possible earthen basins. Field data would be necessary to build and execute a working system model.
- Mapping—Accurate analysis and modeling of the area would require system mapping. Mapping data could be obtained via a combination of District survey efforts and aerial survey.
- Modeling—Off-canal storage and regulatory reservoir(s) would be significant additions to the GCID system with significant impacts to system operation and possibly to regional hydrology. A model should be built and executed to evaluate the impacts to the region and the District's system. Model output would be essential in helping to site the project, determine economic feasibility, and assist with initial environmental and permitting requirements.
- Data Analysis—Data should be analyzed with respect to economic, technical, and political feasibility.
- Report—A final report should be issued complete with recommendations so that the next phase of the project (preliminary design) could be immediately initiated in the

event the feasibility study finds that off-canal storage and/or regulatory reservoir(s) would be a viable project.

Pending the outcome of the proposed feasibility study, GCID could potentially implement an off-canal storage and regulating reservoir program within 8 to 10 years of project approval. Such a project is believed to be able to yield a maximum of 35,000 ac-ft annually. This yield is dependent upon project scope and annual conditions. Project scope options include at its most expansive, two storage components, or at its most fundamental, one storage component. Estimated storage capacities range from 5,000 ac-ft for a regulating reservoir to 30,000 ac-ft for an off-canal storage reservoir.

The feasibility study would likely examine the following project aspects that have been considered on a conceptual level. Implementation of the feasibility study is discussed further in Section 6.

Facilities

The major facilities for this program could include:

- **Off-canal Storage Basin**
  - **Location**—Downstream of the GCID Main Canal terminus.
  - **Possible Footprint**—An estimated 3,500 acres with 12-foot-highberms.
  - **Capacity**—With a 2-foot freeboard, storage capacity would approximate 35,000 ac-ft, with a possible yield for available supply estimated at 30,000 ac-ft.
  - **Existing Land Use**—Agriculture is the predominant land use in the area, yet it is troubled with regular flooding from stormwater cross-drainage, area creeks (e.g., Sand Creek and Freshwater Creek), and the Colusa Basin Drain.The area's susceptibility to flooding may make the land more accessible for purchase.
  - **Design Considerations**—The storage basin would be earthen with minimal cut and fill. Infiltration rates are perceived to be conducive for storage.Groundwater is relatively shallow throughout the District. The average depth to the water table in this area is 15 feet. The basin would be gravity fed from the GCID Main Canal with possible contributions from the Tehama-Colusa (TC) Canal.
- **Regulating Reservoir**
  - **Location**—Near the half-way point of the District's Main Canal, upstream and adjacent to the TCCA-GCID Intertie (GCID Main Canal mile post 37.22R).
  - **Possible Footprint**—An estimated 800 acres with 12-footberms extending on either side of the Main Canal.
  - **Capacity**—With a 2-foot freeboard, storage capacity would approximate 8,000 ac-ft, with a possible yield for available supply estimated between 5,000 and 7,000 ac-ft.
  - **Existing Land Use**—The majority of this land is used for sheep ranching (the west side of the Main Canal), and a small percentage is dedicated to farming (the east side of the Main Canal).

  - **Design Considerations**—The storage basin would be earthen with minimal cut and fill. Infiltration rates are perceived to be conducive for storage.Groundwater is relatively shallow throughout the District. The average depth to the water table in this area is 15 feet. The basin would be gravity fed from the GCID Main Canal and possibly from the TC Canal via the Intertie, a waste gate near the site of the regulating reservoir.

- **Conveyance Facilities**
  - New turnout structures and conveyance systems would deliver excess surface water supply from the GCID Main Canal to the basins.The size, length, and layout of these facilities are dependent upon flow rates, basin design and characteristics, and detailed location.

Facility Operations

As part of the District's water management effort, the operation of this project should be closely coordinated with other management efforts such as system flow measurement and canal automation. The basin operations could include:

- **Off-canal Storage Reservoir**
  - **Reservoir Inflows—**Most likely to occur October through April when irrigation demand is lower; sources would likely include stormwater, Sacramento River and its tributaries, and groundwater delivered via the GCID and TC main canals
  - **Reservoir Outflows—**Most likely to occur April through October during the hotter, more arid months; recipients would likely include any user downstream of the reservoir in or out of basin; any release from the reservoir would likely occur via the Colusa Basin Drain
  - **Operations Considerations—**The District has expressed willingness to operate and maintain this facility as part of its system; it may be possible that a separate entity would prefer jurisdiction over the inflows to and releases from this reservoir
- **Regulating Reservoir**
  - **Reservoir Inflows—**Most likely to occur October through April when irrigation demand is lower; sources would likely include stormwater, Sacramento River and its tributaries, and groundwater delivered via the GCID and TC main canals
  - **Reservoir Outflows—**Most likely to occur April through October during the hotter, more arid months; recipients would likely include any user downstream of the reservoir in or out of basin, especially District landowners along the last half of the canal; any release from the reservoir would likely occur via the GCID Main Canal and the Colusa Basin Drain; outflow from the regulating reservoir could contribute to the off-canal storage at the end of the system
  - **Operations Considerations—**The District would operate and maintain this facility as part of its system

Long-term Component

This project proposes a feasibility study to examine the benefits and viability of off-stream storage and regulating reservoirs within the GCID system. There is no long-term component of the feasibility study. However, a long-term project is anticipated to evolve from the feasibility study.

2. Potential Project Benefits/Beneficiaries

The expected beneficiaries of this program include GCID, downstream users, the environment, and the Sacramento-San Joaquin Delta. Although no direct benefits will result from the feasibility study, benefits to in- and out-of-basin users could be derived from a project that results from the study. The following benefits are discussed in this section:

- Water Supply
- Water Management
- Delta Water Quality
- Environment
- Groundwater Recharge
- GCID Operations

Water Supply

The most significant benefit and predominant goal of the project is to capture and store water supply that may not otherwise be exploited, e.g., pulse flows from winter storms. Water supply benefits are expected to include:

- **Increased In-stream Flows—**The majority of the water supply benefits would most likely be derived from increased in-stream flows. The Off-canal Storage Reservoir would retain water from sources that may not typically provide supply when there is demand, e.g., winter flood flows. By offering another source of supply during high demand (e.g., irrigation season) to downstream water purveyors, diversions from the Sacramento River could consequently be reduced by an equal amount, up to 30,000 ac-ft. The decreased surface water diversions could be mutually beneficial to in-basin and out-of-basin users. During dry years, the additional river flows afforded by the decreased diversions would provide much-needed habitat for aquatic and riparian species, increased available supply to downstream users, and increased inflows to the Delta. The reservoirs would allow an increase in system flexibility, affording the District flexibility with diversions that could thereby increase in-stream flows when most needed.
- **Increased Reliability of Supply—**This project could provide stakeholders and refuges with increased reliability of supply during critical dry years when the possibility exists that allowable surface water supplies could be decreased. Although the reservoir is likely to be low during prolonged periods of drought (more than 1 or 2 years), the initial availability of supply would provide a maximum of 30,000 ac-ft otherwise unavailable to downstream users.
- **Aquifer Recharge—**The reservoirs would be unlined natural earth basins, which would naturally recharge groundwater through infiltration.

Water Management

This project may potentially provide water management benefits primarily by increasing conveyance efficiency, providing flexibility in the timing of surface water diversions primarily on the Sacramento River, increasing the ability to store and target releases of surface water supplies, and providing increased flexibility and reliability through management of both surface- and groundwater supplies.

The project would accumulate pulse flows, which are a result of normal operations, farm releases, and weather, in the system that may not otherwise be efficiently utilized. These flows have been estimated at a maximum of 2,000 cfs weekly. The reservoirs would be able to handle the excess flows to enhance the water management capability of the District and downstream users. Downstream water users would be able to improve their water management decisions by using increased regulation and storage of pulse flows.

Water Quality

Water quality benefits of the project generally stem from increased in-stream flows and water retention. Improvements to both temperature and constituent properties of the river and outflows from the reservoirs would be the most probable results of the increased in-stream flows and water storage. These benefits would need to be evaluated and modeled on a regional basis to determine impacts on water quality in the Sacramento River and the Delta. Depending upon implementation and configuration of the project, there may be temperature improvements to the GCID intra-district supply. The regulating reservoir could essentially increase the temperature of the supply, making the water more desirable for downstream rice farmers.

Environment

The environmental benefits associated with this project would be quantified throughout the various stages of the project, from feasibility study through final design.Some environmental benefits that have been identified at this level of investigation include:

- **Sacramento-San Joaquin Delta—**The decrease in surface water diversions and addition of artificial groundwater basin recharge has the potential for increasing available seasonal in-stream flows to the Delta. The downstream users' potentially decreased diversions, a maximum of 30,000 ac-ft, is a quantifiable number that directly reflects the potential increased available supply in the Sacramento River.
- **Aquatic/Riparian Habitat—**The reservoirs would provide habitat for local wildlife such as waterfowl by essentially creating a human-made wetland.It has been suggested that the Off-canal Storage Reservoir could incorporate islands specifically designed to attract waterfowl and provide safe breeding grounds for said birds.Furthermore, improved in-stream flows would generate expected fisheries benefits, both in terms of water quality and sheer volume of water. Flow management could yield environmental benefits by achieving the Quantifiable Objective (QO) of reducingsalmonid attraction flows into the Sacramento River at Knights Landing.
- **Firmer Supply to Refuges—**Although in dry years environmental entities such as wildlife refuges are not among the top two priorities for water delivery, they do benefit from an increased reliability in supply.

Glenn-Colusa Irrigation District Operations

The load-shedding component of the reservoirs maximizes the pumping of water supplies into storage during off-peak energy consumption periods and the releasing of flows during on-peak periods, thereby enabling the system to shed load demands on the power grid.

3. Project Costs

The cost opinions shown, and any resulting conclusions on project financial or economic feasibility or funding requirements, have been prepared for guidance in project evaluation from the information available at the time of the estimate. It is normally expected that cost opinions of this type, an order-of-magnitude cost opinion, would be accurate within +50 to -30 percent. Project costs were developed at a conceptual level only, using data such as cost curves and comparisons with bid tabs and vendor quotes for similar projects. The costs were not based on detailed engineering design, site investigations, and other supporting information that would be required during subsequent evaluation efforts.

The final costs of the project and resulting feasibility will depend on actual labor and material costs, competitive market conditions, actual site conditions, final project scope, implementation schedule, continuity of personnel and engineering, and other variable factors. As a result, the final project costs will vary from the opinions presented here. Because of these factors, project feasibility, benefit/cost ratios, risks, and funding needs must be carefully reviewed prior to making specific financial decisions or establishing project budgets to help ensure proper project evaluation and adequate funding.

Table 5A-1 presents an order-of-magnitude project cost estimate.Future stages of the project, from feasibility study to final design would include progressively detailed cost estimates for the new facilities.

TABLE 5A-1
Planning-level Project Costs
Glenn-Colusa Irrigation District Regulatory Reservoirs and Off-canal Storage Feasibility Study

Item	Quantity	Units	Unit Price ($)	Total Cost ($ x 1,000)
Field Tests	15	Acres	6,000	$25
Hydraulic Modeling and Mapping	400,000	Cubic yards	8	$330
Data Collection	400,000	Cubic yards	12	$25
Data Analysis	2	Structure	75,000	$50
Report	1	Structures	75,000	$15
			Subtotal	$445
			Contingencies and Allowances (30%) ->	$134
			Total Costs ->	$579
			Environmental Mitigation (5%)	$29
			Engineering, Environmental, Construction Management and Admin. (25%) ->	$145
			Total Project Cost ->	**$753**

4. Environmental Issues

As noted in Section 2, this project is anticipated to provide benefits in the form of increased water supply, more flexible water management, and improved water quality – all of which could improve the greater Sacramento River ecosystem. Additionally, the project could provide environmental benefits at the reservoir site by providing waterfowl habitat. Regional benefits in the form of reduced energy consumption could also accrue from project implementation.

Project implementation would also result in impacts to the environment, notably through the conversion of open space to a reservoir. Construction-related impacts would also occur prior to project implementation. Construction-related impacts would be similar to other, common construction projects that occur near seasonal drainages and waterways. It is likely that the appropriate level of environmental documentation necessary for this project would be an environmental impact statement/environmental impact report (EIS/EIR).

Implementation of the project would also require issuance of permits from various regulatory agencies. Following is a summary of the likely permitting requirements. Additional permitting requirements may be identified pending further project refinement.

- **State Water Resources Control Board—**Applications for new water rights and changes in point of diversion would be required.
- **Regional Water Quality Control Board**—Large amounts of earthwork would be required for the recharge basins. Depending upon project configuration and location, Water Quality Certification under the federal Clean Water Act may be required for construction.
- **Federal and State Endangered Species Act—**Consultation with state and federal resource agencies (e.g., USFWS, NMFS, CDFG) may be required to protect special-status species and their habitat.
- **U.S. Army Corps of Engineers (COE)—**The project may affect wetland habitat and require a permit for discharge of dredged or fill material pursuant to Section 404 of the federal Clean Water Act.
- **State Lands Commission—**Project would need to consult with State Lands Commission on the public agency lease/encroachment permitting for use of state lands.
- **State Reclamation Board—**The project may be subject to rules regarding encroachment into existing floodways.
- **Federal Emergency Management Agency (FEMA)—**Letters of map revision need to be filed with FEMA for projects that affect Flood Insurance Rate Maps.
- **Division of Safety of Dams (DSOD)—**Design and configuration of the storage basins may require permitting and compliance with Dam Safety due to the height of the retention walls. DSOD is structured within DWR.

- **Advisory Council on Historic Preservation—**Consultation under Section 106 of the National Historic Preservation Act may be necessary if historical resources are affected by construction of the project.
- **California Department of Fish and Game—**If alterations to streams or lakes are required as part of project implementation, a Streambed or Lakebed Alteration Agreement may be required.
- **Local governments and special districts—**Specific agreements for rights-of-way, encroachments, use permits, or other arrangements may need to be made with local entities in the vicinity of the project.

A draft CEQA environmental checklist has been prepared for this proposed project and is included as an attachment to this evaluation. The checklist provides a preliminary assessment of the environmental areas of concern, as well as areas that are not likely to be of concern, associated with this project. The checklist would be finalized as part of the environmental compliance required for project implementation.

5. Implementation Challenges

At a reconnaissance level of study, implementation challenges are likely to be minimal. The most significant challenges to the successful and thorough completion of the study could include laying the groundwork for a successful project past the reconnaissance level (e.g., laying the groundwork for public outreach and initiating contact with landowners that might be directly affected by the project). The project that could evolve from the feasibility study would occur in several incremental stages, each of which would have significant challenges. Many of these challenges would be inherent to any project of this size and complexity. Significant environmental issues are related to such a large-scale project, with the environmental issues being paramount. The project would need to be developed in a manner that supports the objectives of local and regional management plans.

Coordination among Public and Private Entities

Strong coordination would be required among local, state, and federal entities such as GCID, USFWS, USBR, and DWR. The governmental agencies would have strong interests associated with the project and indirectly as it may affect other interests in the area. It is highly probable that because of the complexity and far-reaching implications of the project, competing interest may arise. Reliable communication and integrated coordination would be required to create a successful project.

Water Rights Implications

GCID water rights would have to be guaranteed and preserved. There is concern that a "use it or lose it" mentality may become prevalent during the implementation of the conjunctive use program. Although the District would be expecting to decrease their annual surface water diversions, it should not be assumed that they would be relinquishing a comparable amount of their water rights.

Environmental Regulatory Compliance

Extensive environmental documentation, surveying, monitoring, and permitting would be required for this project. Habitat for known Endangered Species Act-listed species such as the valley elderberry longhorn beetle and the giant garter snake is present within the project area. Project scheduling would have to reflect environmental regulatory requirements including any limitation on windows of construction.

Land Acquisition

Land would have to be acquired to support the reservoirs and conveyance facilities. Some landowners may be resistant to the land purchases.

Key Stakeholders

Table 5A-2 lists the key stakeholders that are expected to be associated with or impacted by this conjunctive use and recharge project. Also, listed are the anticipated roles, concerns, and/or issues corresponding to each stakeholder.

TABLE 5A-2
Stakeholder Roles and Issues
GCID Regulatroty Reservoirs and Off-canal Storage Feasibility Study

Stakeholder	Role/Concerns/Issues
GCID	• Project proponent and direct beneficiary
Downstream Users (e.g., Reclamation District 108, Sutter Mutual Water Company)	• Possible increased in-stream flows • Possible additional source of supply
Colusa County	• May affect flood flows and drainage
Local Landowners	• Impacts on tailwater supply • Acquisition of possible land easement and/or purchase
USBR, DWR	• Water rights • Integration with other regional management concepts such as off-stream storage
Environmental Interest Groups	• In-stream flow impacts, fishery impacts, land use, water quality impacts
USFWS/CDFG	• Compliance with environmental regulations • Possible habitat created by reservoirs
Sacramento-San Joaquin Delta	• Possible increased inflows

6. Implementation Plan

The following major steps would be required to implement the project. Each step depends on successful completion of the previous supporting steps, and findings that support further actions. Figure 5A-2 shows an assumed implementation schedule based on typical time requirements for each step in a project of this scale.

1.1 Feasibility study, data collection, modeling, and mapping—This step could begin immediately and is intended to develop the specific project components, general features, operating concepts, and potential benefits. It would also determine the basic engineering and economic feasibility of the project. This first step of the project would take approximately 1 year to complete.

1.2 Project concepts report—The purpose of the project concepts report would be to refine the design criteria developed in the hydrologic report, identify and locate specific project features, examine alternatives, and estimate costs in sufficient detail to support an environmental assessment (EA)/EIR. The development of the project concepts report would be completed within 9 months.

1.3 Environmental reconnaissance study—Biological field surveys, resource database review, and other reconnaissance would determine permitting requirements and the appropriate level of required environmental documentation. This task would also identify sensitive areas or issues of environmental concern related to site selection. This task could be completed within 3 months.

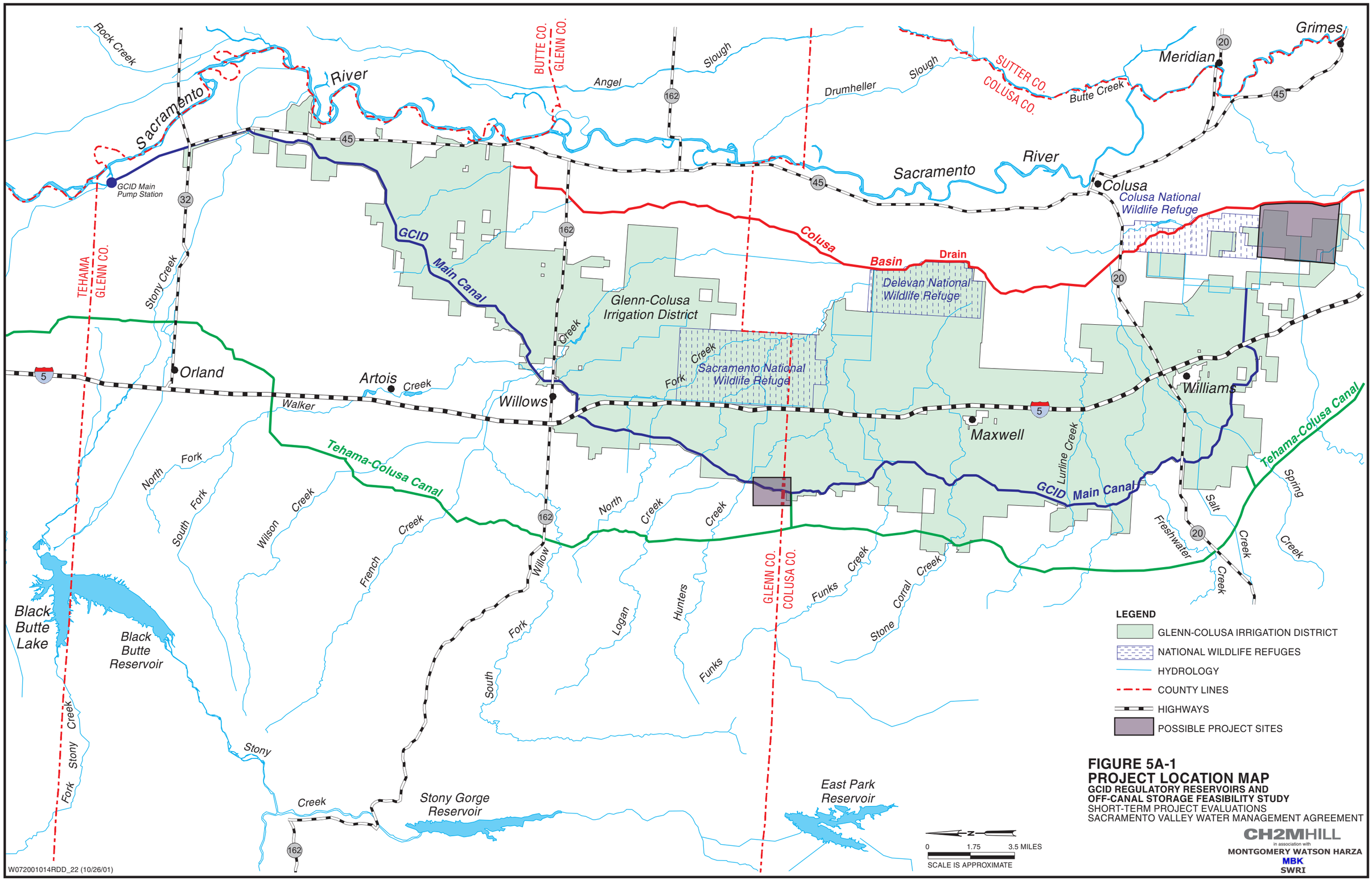

FIGURE 5A-1
PROJECT LOCATION MAP
GCID REGULATORY RESERVOIRS AND
OFF-CANAL STORAGE FEASIBILITY STUDY
SHORT-TERM PROJECT EVALUATIONS
SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

CH2MHILL
in association with
MONTGOMERY WATSON HARZA
MBK
SWRI

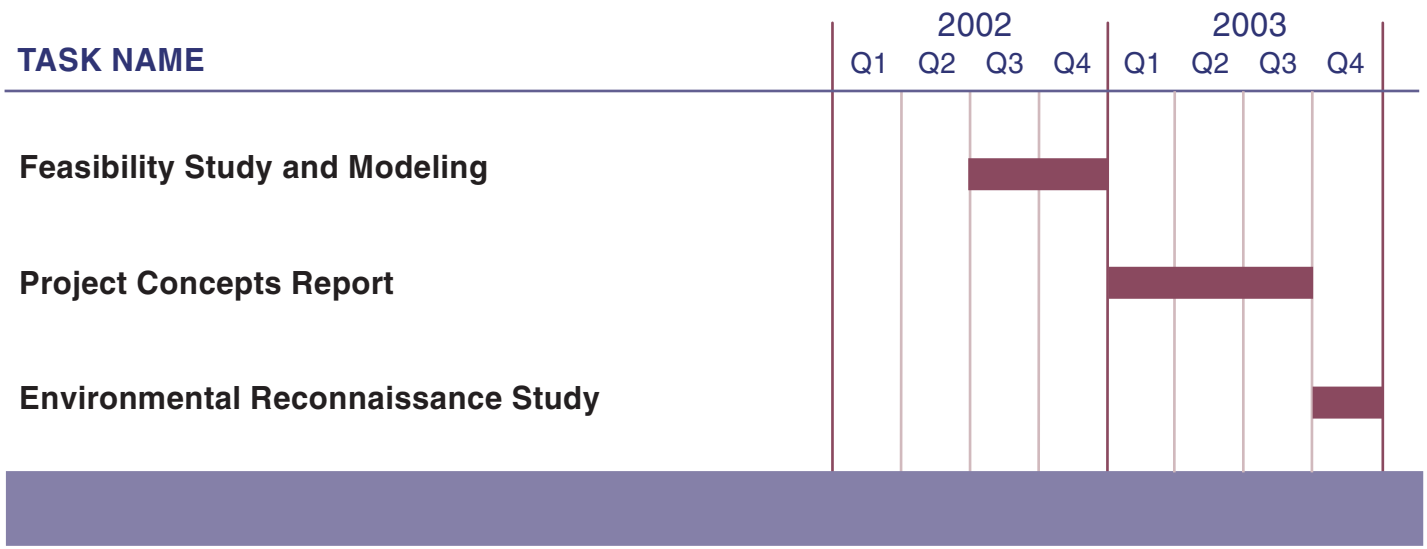

FIGURE 5A-2
PRELIMINARY IMPLEMENTATION SCHEDULE
GCID REGULATORY RESERVOIRS AND
OFF-CANALSTORAGE FEASIBILITY STUDY
SHORT-TERM PROJECT EVALUATIONS
SACRAMENTO VALLEY WATER MANAGEMENT AGREEMENT

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Project 5A—Draft CEQA Environmental Checklist

Project 5A—Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality	☐ Land Use/Planning
☐ Mineral Resources	☐ Noise	☐ Population/Housing
☐ Public Services	☐ Recreation	☐ Transportation/Traffic
☐ Utilities/Service Systems	☐ Mandatory Findings of Significance	

Determination:

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____ _____

Signature Date

_____ _____

Printed Name For

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS—Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
Short-term impacts from increased noise and dust emissions could occur as a result of construction. Mitigation measures implemented for noise and air quality would reduce any impacts to a less than significant level.				
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
II. AGRICULTURE RESOURCES—Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
This project would include one or more off-canal regulating/storage reservoirs in the Colusa Basin (ranging in size from 5,000 acre-feet [ac-f]) to 30,000 ac-ft). The exact location of these reservoirs are yet to be determined. The off-canal storage basin would be generally located downstream of the GCID Main Canal terminus. The regulating reservoir would be located near the halfway point of the District's Main Canal, upstream and adjacent to the TCCA-GCID Intertie. The majority of land around these locations is used for agricultural purposes. These reservoirs may require a permanent conversion of potential Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.				
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☐	☐
See response to II (a) above.				
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☒	☐	☐	☐
See response to II (a) above.				
III. AIR QUALITY—Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
Increased air emissions could result from construction of the project. Implementation of best management practices (BMPs) during construction would reduce the amount of emissions and reduce the impact to a less than significant level.				
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	☐	☒	☐	☐
See response to III (b) above.				
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES—Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
Known Endangered Species Act (ESA)-listed species such as the valley elderberry longhorn beetle and the giant garter snake are within the area. Additionally, sensitive riparian habitat exists in and around the project site. Potential conversion of habitat could occur as a result of the project and would have to be mitigated. Additionally, project construction scheduling would have to reflect environmental regulatory requirements including any limitation on windows of construction.				
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☒	☐	☐	☐
See response to IV (a) above.				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act, (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
See response to IV (a) above.				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or, impede the use of native wildlife nursery sites?	☐	☒	☐	☐
See response to IV (a) above.				

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
Removal of vegetation would inevitably be required as part of the project construction and implementation. Mitigation measures would be implemented to replace any vegetation removed for the project, which would attempt to reduce the impact to a less than significant level.				
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?.	☒	☐	☐	☐
See response to IV (e) above.				
V. CULTURAL RESOURCES—Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
A significant impact would occur if a cultural resource were to be disturbed by activities associated with project development. In the event that an archaeological resource was discovered, appropriate measures would be undertaken to minimize any impacts				
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
See response to V (a) above.				
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
See response to V (a) above.				
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
See response to V (a) above.				
VI. GEOLOGY AND SOILS—Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
Iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
VII. HAZARDS AND HAZARDOUS MATERIALS—Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
Construction equipment would require the use of potentially hazardous materials. The potential for significant hazardous material spill would be unlikely because of the limited amount of such materials that would be used onsite. If a spill or release of such materials were to occur, it could potentially be significant unless BMPs were implemented.				
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
See response to VII (a) above.				
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY— Would the project:				
a) Violate any water quality standards or waste discharge requirements? *Increases in turbidity would be likely to occur during any potential in-stream construction work. Additionally, there is a potential for an increase of erosion and sedimentation from construction activity. This could be a significant impact and would require an erosion control plan, and the implementation of BMPs to reduce any impacts to waterways in and around the project area.*	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? *The basins would be gravity fed. Sources to the reservoirs would be likely to include runoff from storm events. This would be a beneficial impact to surrounding land owners, because this area is currently susceptible to flooding.*	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam? *A 3,500-acre off-canal storage basin would be constructed as part of the project. This basin would have an estimated storage capacity of 35,000 ac-ft. An 800-acre regulating reservoir would also be constructed as part of the project. This reservoir would have an estimated storage capacity of 8,000 ac-ft. Both would consist of 12-foot-high berms surrounding the footprint of each reservoir.*	☒	☐	☐	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
IX. LAND USE AND PLANNING—Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒	☐	☐
Short-term impacts from increased noise and dust emissions could occur as a result of construction. Mitigation measures implemented for noise and air quality would reduce any impacts to a less than significant level.				
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☒	☐	☐
See response to IV (e) above.				
X. MINERAL RESOURCES—Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
XI. NOISE—Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	☐	☒	☐	☐
Short-term noise levels are expected to increase for the duration of construction. These noise increases would be temporary, and mitigation measures would be implemented to reduce any impact to a less than significant level.				
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	☐	☒	☐	☐
See response to XI (a) above.				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XII. POPULATION AND HOUSING—Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIII. PUBLIC SERVICES—Would the project:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?	☐	☐	☐	☒
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☒	☐
XIV. RECREATION—Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XV. TRANSPORTATION/TRAFFIC—Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒
XVI. UTILITIES AND SERVICE SYSTEMS— Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐
XVII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐